Abstract

A circuit having a fingerprint for identification of a particular instantiation of the circuit. The circuit comprises a plurality of digital circuits or gates, the plurality digital circuits or gates each having an analog input and wherein each of the digital circuits or gates has at least one functional state wherein the corresponding digital circuit or gate performs an intended digital function and at least one other state wherein the intended digital function is not performed. Each of the digital circuits or gates is responsive to a configuration voltage applied to its analog input for controlling whether or not the digital circuit or gate performs its intended digital function and each of the digital circuits or gates transitioning between its functional state and its at least one other state when the configuration voltage equals a boundary voltage. The boundary voltage varies between different instantiations of the circuit for a majority of the digital circuits or gates and these differing boundary voltages serving to identify (or fingerprint) different instantiations of the same circuit. A plurality of digital to analog converters are preferably used for generating configuration voltages each applied to one or more of the plurality of digital circuits or gates.